

3. Facility Recommendations



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3. Facility Recommendations

This chapter provides bikeway network facility recommendations for the city of Milwaukee. These recommendations are divided into three sections: the On-Street Bicycle Network, the Off-Street Bicycle Network and Support Infrastructure. Each section is guided by an overarching goal, which is supported by specific objectives and policies to achieve each goal. Whenever possible, performance measures, best practices from around the country and departmental responsibility have been included with each policy. The Department of Public Works (DPW) is assumed to be responsible for all policies unless other departments are listed. Detailed facility design guidance is provided in the appendices.

As detailed in Appendix A, the city of Milwaukee has approximately 116 miles of existing bike lanes and routes; these facilities place approximately 45% of the city's area within ¼ mile of a designated bikeway; Map 1 displays the city's existing on-street facilities, while Map 2 displays areas within ¼ mile of these facilities. This plan proposes an additional 153 miles of bike lanes, nearly ten miles of signed bike routes, recently federally approved "shared-lane pavement markings" and over 54 miles of bicycle boulevards. Additionally, pilot studies of raised bicycle lanes and cycle tracks are recommended. The implementation of these facilities will result in a



Milwaukee's bike lane network has increased substantially in the last ten years

bicycle network of over 356 miles. This network will put approximately 75% of Milwaukee's total area within ¼ mile of a designated on-street bicycle facility. Map 3 at the back of this plan displays the existing and proposed on-street facilities and Map 4 displays the areas of the city within ¼ mile of these facilities.

Many of the proposed facilities, particularly many of the bicycle lanes, have already undergone preliminary feasibility analysis and are ready to be implemented. However, many of the proposed facilities will need additional feasibility studies to determine the actual level of improvement. The proposed raised bike lanes on Bay Street and the three viaducts over the Menomonee Valley will be the first raised bike lanes in Wisconsin and should be implemented as a pilot study to monitor their effectiveness and maintenance issues that may arise.

Table 2 shows the mileage of existing and proposed bicycle facilities in Milwaukee. Maps 1 – 8 at the back of this plan display the existing and proposed bicycle facilities in Milwaukee. Detailed descriptions and cost estimates of the proposed facilities are provided in Appendix J while detailed design guidance is provided in Chapter 4.

Table 2: Miles of Existing and Proposed Bicycle Facilities

	Existing	Planned	Proposed	Total
Bike Lanes	52.47	54.26	99.10*	205.83
Raised Bike Lanes	0.00	0.00	4.77	4.77
Bike Routes	65.45	0.00	9.11	74.56
Bike Boulevards	0.00	0.00	54.07	54.07
Paved Trails	3.10	0.00	14.38	17.48
Total	121.02	54.26	235.70	356.72

* 29.32 miles of proposed bike lanes will be marked with Shared Lane Pavement Markings in 2011 as part of a CMAQ pavement marking grant.

The On-Street Bicycle Network

Goal

Expand Milwaukee's bicycle network so all residents live within ¼ mile of a bicycle facility.

Route Selection Criteria

The proposed bicycle facilities were selected to form

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an attractive, convenient and well-connected network that meets the transportation and recreation needs of Milwaukee residents. Factors considered during the assessment of facilities include bicycle trip generators, traffic volumes and roadway geometries. Citizen feedback, the future demand estimates in Appendix D, and the safety analysis presented in Appendix E also factored in to route selection. Political realities, including willingness to remove vehicle travel and parking lanes to create space for bicycle facilities, also factored into route selection.

Attractiveness

Adding new bike lanes have proven to be successful in getting many more Milwaukee cyclists riding for transportation. Bike lanes on major streets remain the foundation of the on-street bikeway network since getting to nearly all destinations involves traveling on a major street, even if only for a block or two. The proposed system in this plan includes additional bike lanes on arterial streets, but also recommends facilities like bike boulevards, raised bike lanes and shared lane pavement markings. These facilities will be attractive transportation options to a wider audience of people interested



Milwaukee's award winning 6th Street Bridge includes bike lanes with anti-slip plates

in riding bicycles. The recommended bikeway system also seeks to increase the number of crossings of major barriers, including rivers and freeways.

Convenience

Milwaukee's bicycle network must be convenient to use in order to be a viable transportation option for residents. Potential users must know that they can find a safe bikeway within a few blocks of the origin and destination of their trip to make the trip by bike. The proposed network includes a bikeway within ¼ mile of 75% of the city and sets a goal of providing a facility within ¼ of every point in the city.

Coverage and Connectivity

The proposed system is designed to provide bicycle facilities within close proximity to the majority of Milwaukee residences and places of employment. The network is primarily comprised of bike lanes, but also includes a network of bicycle boulevards, signed bike routes, bike routes with shared lane pavement markings and raised bike lanes.

The proposed system provides a well-connected network of bicycle facilities and will allow users to access residential areas, parks, schools, employment centers, retail areas and other popular destinations. The bicycle boulevard network was specifically designed to connect parks and other areas popular with children and families and to provide low traffic corridors in areas lacking off-street paths. Additionally, the proposed system provides numerous connections to adjacent municipalities.

Proposed Facility Maps

Maps 3 – 9 display the proposed network and are included at the back of this plan. Map 3 displays all of the on-street facilities on a single map while Maps 5, 6, 7, and 8 display maps of individual facility types. Map 9 shows street segments that will have bike lanes or Shared Use Pavement Markings applied in 2011; this project is funded with a CMAQ grant. A large format PDF map is included on the CD accompanying this plan and with downloads of the plan.

Detailed Route Descriptions

Appendix J provides detailed project descriptions and includes facility lengths and individual project cost opinions.

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Objective 1: Continue Expanding the On-Street Bicycle Network

Supporting Policies

- 1.1 Provide equal, and sometimes preferential consideration to bicyclists and pedestrians in the planning, design, and operation of transportation facilities. Utilize a green transportation hierarchy or “complete streets” policy that begins the transportation design and planning process with the local land use rather than motor vehicle traffic volumes.
 - 1.1.1 Performance Measure: Adopt “complete streets” policy in 2010.
 - 1.1.2 Best Practices: Portland, OR
- 1.2 Implement the bike lane, bike route and bicycle boulevard network detailed in Maps 3 – 9 and Appendix J of this plan.
 - 1.2.1 Performance Measures: Stripe half of all proposed bicycle lanes by the end of 2011, and all proposed lanes by the end of 2012. Mark segments of proposed bike lanes that are not currently feasible due to right of way constraints with Shared Use Pavement Markings. Sign all bicycle routes by the end of 2011. Implement at least two segments of bicycle boulevard per year (see 3.1 in this section).
 - 1.2.2 Best Practices: Chicago, IL; Portland, OR
- 1.3 Evaluate the bicycle network for new opportunities, missing links and additional needs on an annual basis and add these to the Proposed Bicycle Network Map.
 - 1.3.1 Performance Measures: Update the Proposed Bicycle Network Map annually.
 - 1.3.2 Best Practices: New York City, NY
- 1.4 Add bicycle facilities to arterial and collector streets as they are reconstructed or resurfaced.
 - 1.4.1 Performance Measures: Accommodate bicycles on all newly reconstructed arterials and collectors.
 - 1.4.2 Best Practices: Portland, OR

Discussion

Bicycle accommodations should be included as a routine part of all transportation projects (1.1). To achieve this, Milwaukee shall adopt a “complete streets” policy such as the one detailed in Appendix K. In addition to including bicycle facilities in all transportation planning, this plan specifically calls for the addition of 125 miles of new bicycle lanes, nearly ten miles of bicycle routes and nearly 40 miles of bicycle boulevards to the city’s bicycle network (1.2).

The city’s street network should be regularly evaluated for new and additional opportunities for bicycle facilities, particularly in underserved areas or in areas with missing links between existing facilities (1.3). In particular, the city should evaluate all arterial and collector streets that carry 2,000 or more vehicles per day for the ability to add bicycle lanes. If bicycle lanes are not feasible on specific streets, alternate bicycle treatments should be considered, including shared-lane markings or bicycle route signage. Every effort should be made to accommodate cyclists on all arterials and collector streets (1.3).

In addition to bicycle facilities such as bike lanes and shared lanes, designated bike routes should be used within Milwaukee to provide continuity between other bicycle facilities (1.4). Bike routes can provide direct routes to popular destinations that are not well served by other facilities or can parallel major roadways that may not be safe or comfortable for bicycle travel.



Milwaukee has a number of buffered bicycle lanes that separate cyclists further from traffic than standard bike lanes

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Objective 2: Improve Bicycle Access at Hazard Areas and Across Barriers

Supporting Policies

- 2.1 Sign bicycle routes with “Bicycles May Use Full Lane” R4-11 sign and/or add shared lane pavement markings (MUTCD figure 9C-9) on streets needed to connect bicycle lanes or key destinations where bicycle lanes will not fit due to right-of-way constraints.
 - 2.1.1 Performance Measures: Install R4-11 signs and/or shared lane markings at ten locations by the end of 2011.
 - 2.1.2 Best Practices: Chicago, IL
- 2.2 Work with the County, DNR, WisDOT and USDOT to create a bikeway connection from Veterans Park to South Shore Park as a part of the Hoan Bridge Project.
 - 2.2.1 Performance Measures: Inclusion of a bikeway on any future reconstructed or rebuilt bridge.
 - 2.2.2 Best Practices: Milwaukee, WI (Marsupial Bridge); Austin, TX (Mo-Pac Expressway); Charleston, SC (Cooper River Bridge)
- 2.3 Cover the bicycle portion of any grated bridges with a solid, non-skid material.
 - 2.3.1 Performance Measures: Cover the bicycle lane portion of all grated bridges by the end of 2014.
 - 2.3.2 Best Practices: Chicago, IL
- 2.4 Convert front-in angle parking to parallel parking or back-in angle parking if the number of parking spots must be retained.
 - 2.4.1 Performance Measures: Convert half of all front-in angle parking in the downtown area to back-in or parallel parking by the end of 2011, and convert the remaining parking spaces by the end of 2012.
 - 2.4.2 Best Practices: Seattle, WA; Portland, OR; Wilmington, DE; Washington, D.C.; Indianapolis, IN
- 2.5 Maintain bicycle access through or around construction areas or areas where bikeways are closed for a significant period of time.
 - 2.5.1 Performance Measures: Require all street or building projects that obstruct a bikeway to provide an alternate route by the end of 2011.

Discussion

Milwaukee has numerous freeways, rivers and narrow right-of-ways that present hazards or barriers to cyclists. Many bridges or underpasses crossing these barriers do not allow comfortable access to bicyclists and are a major impediment to increased cycling in the city. Signage should be added to narrow areas alerting both cyclists and motorists to the right of cyclists to use the full travel lane (2.1).

Bridges are particularly problematic for cyclists. The lack of bicycle access on the Hoan Bridge and across the harbor is commonly cited as the greatest physical barrier to cycling in Milwaukee. The city should work to ensure that bicycle access is included on the bridge in the future (2.2). The city should also ensure that lift bridges with metal grate decks have a smooth, nonskid surface in the bicycle lane to reduce hazards (2.3).

Motor vehicles pulling in and out of on-street parking areas often conflict with bicyclists. Angle parking is particularly dangerous, as motorists are often forced to back blindly out of the parking space. Parallel and back-in angle parking provide better visibility when pulling into and out of parking places. Front-in angle parking should be converted to back-in angle parking or parallel parking, which can also provide room to add bicycle lanes to a street (2.4).

When construction projects encroach into the street, it is critical that bicycle access is maintained or that clear, convenient detours for cyclists are provided so that cyclists are no more inconvenienced than drivers (2.5).



It is important to maintain bike access through construction zones, particularly on busy streets

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Objective 3: Implement Innovative Facilities to Increase Bicycling Participation

Supporting Policies

- 3.1 Establish a bicycle boulevard/quiet-street network that allows residents to participate in lengthy recreational rides on bicycle designated streets.
 - 3.1.1 Performance Measures: Designate and implement four bicycle boulevards throughout the city by the end of 2011. Continue adding Bicycle Boulevards at a rate of at least two per year.
 - 3.1.2 Best Practices: Portland, OR; Berkeley, CA
- 3.2 Test raised bicycle lanes.
 - 3.2.1 Performance Measures: Pilot at least one section of raised lane in 2011. If successful, continue to implement around the city.
 - 3.2.2 Best Practices: New York, NY; Eugene, OR
- 3.3 Test bicycle boxes throughout the city.
 - 3.3.1 Performance Measures: Implement bicycle boxes at five intersections in 2010. If successful, continue to implement around the city.
 - 3.3.2 Best Practices: Portland, OR; Berkeley, CA; New York, NY
- 3.4 Install shared lane markings throughout the city.
 - 3.4.1 Performance Measures: Implement shared lanes on at least five miles of city streets by the end of 2010. Continue adding shared lanes at a similar rate in future years.
 - 3.4.2 Best Practices: Chicago, IL
- 3.5 Use other innovative facilities detailed in Chapter 6 to increase cycling throughout the City.
 - 3.5.1 Performance Measures: Test at least one non-standard facility/treatment in 2011 and one in 2012.
 - 3.5.2 Best Practices: Portland, OR; New York, NY
- 3.6 Conduct FHWA experiments and lead the nation in implementing and experimenting with new designs for bicycle and roadway facilities.
 - 3.6.1 Performance Measures: Conduct at least one FHWA approved experiment with bicycle facilities by 2012.
 - 3.6.2 Best Practices: New York, NY, Portland, OR

Discussion

Cyclists have a wide range of comfort levels when it comes to riding with traffic: some are confident riding in heavy traffic, while others, particularly novice cyclists or those with children, are very uncomfortable with even moderate levels of traffic. Innovative facilities can offer more timid cyclists, or those who do not cycle at all due to traffic concerns, an environment that is more comfortable and provides fewer interactions with traffic.

Bicycle boulevards offer bicyclists a low-traffic network that connects neighborhoods, parks, schools, trails and other destinations (3.1). These streets benefit local residents who experience lower traffic levels and speeds on their streets. Bicycle boulevards are ideal for areas with few opportunities for trails or bike lanes or to connect areas with lots of children including parks and schools.

Chapter 6 details facilities and non-standard design treatments designed to be more attractive and comfortable for novice and less traffic tolerant bicyclists (3.2 – 3.5). The opportunity to use these innovative facilities should be closely examined when implementing new bicycle facilities, particularly in areas of high conflict between bicycles and motor vehicles. Where appropriate, Milwaukee should implement innovative facilities that may make bicycle travel attractive and more convenient, conduct studies to determine the success of those facilities, and report the results to FHWA (3.6).



Bike boxes provide additional safe space at stoplights and help reduce the incidence of “right hook” conflicts.

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Objective 4: Provide Connectivity in the Bicycle Network and Link Key Destinations

Supporting Policies

- 4.1 Provide a bicycle network that equitably serves all Milwaukee residents.
 - 4.1.1 Performance Measures: Provide a bikeway within 0.25 miles of all Milwaukee residents by the end of 2015.
 - 4.1.2 Best Practices: Minneapolis, MN
- 4.2 Ensure that the bike system connects to and integrates with the transit system and other multimodal options.
 - 4.2.1 Performance Measures: Provide bikeways directly serving the airport, the Intermodal Station, and large park-and-ride lots by the end of 2011.
 - 4.2.2 Best Practices: Reagan National Airport (Arlington, VA / Washington DC); Portland International Airport (Portland, OR)
 - 4.2.3 Responsible Department: DPW, MCTS, Milwaukee County Airport Authority
- 4.3 Recommend the provision of secure bicycle parking lockers at transit stations and the airport.
 - 4.3.1 Performance Measures: Recommend the installation of secure bicycle parking by the end of 2010.
 - 4.3.2 Best Practices: Victoria International Airport (British Columbia); Caltrain Commuter Rail Stations
 - 4.3.3 Responsible Department: DPW, MCTS, Milwaukee County Airport Authority
- 4.4 Work with adjoining municipalities to ensure that bicycle network provides connectivity throughout the region.
 - 4.4.1 Best Practices: Minneapolis - St. Paul, MN region

Discussion

Bicycling is a low-cost form of transportation and it is critical that bicycle facilities exist in lower income neighborhoods and neighborhoods with lower rates of car ownership. Additionally, the bicycle network must be equitably distributed throughout the City and provide clear, safe and convenient routes exist to key destinations including schools, cultural centers, employment areas and recreation centers (4.1).

The bicycle network should also connect to Milwaukee County Transit System (MCTS) facilities and stops, as well as the intermodal bus and train station, the airport and park-and-ride lots (4.2). Bicycles greatly expand the reach of transit and other forms of transportation: users can easily bike to or from a bus or train that can then take them across the city or across the state.

However, for bicycles to be a part of multimodal trips, bicyclists must be confident that secure parking exists when they move to their next mode. Bicycle lockers or other secure facilities should be installed at the airport, the intermodal station and park-and-ride lots where bicyclists may need to secure their bicycles for multiple days (4.3).

The bicycle network must also connect to neighboring communities. Bicyclist travel does not end at the City's borders, and the City should work with neighboring municipalities to ensure that facilities connect throughout the region (4.4).



A cyclist loads their bike onto a MCTS bus

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Objective 5: Maintain Bicycle Facilities for Safe Use and Operation

Supporting Policies

- 5.1 Sweep all bikeways regularly.
 - 5.1.1 Performance Measures: Sweep priority bikeways weekly and all bikeways at least once every two weeks.
 - 5.1.2 Best Practices: Austin, TX
- 5.2 Provide prompt maintenance of potholes and other pavement damage on bikeways.
 - 5.2.1 Performance Measures: Manually inspect the bicycle network three to four times per year and issue work orders to address maintenance issues. Respond to user complaints within 48 hours.
 - 5.2.2 Best Practices: San Francisco, CA; Austin, TX
- 5.3 Ensure that bicycle lane stripes are repainted before they fade.
 - 5.3.1 Performance Measures: Repaint all bike lane lines annually or more frequently if needed.
- 5.4 Maintain off-street bikeways to the same or higher level as on-street bikeways.
 - 5.4.1 Performance Measures: Sweep all trails on a regular basis; perform maintenance as needed.
 - 5.4.2 Best Practices: Madison, WI
- 5.5 Clear snow from off-street bikeways in a timely manner.
 - 5.5.1 Performance Measures: Plow primary off-street bikeways that the city maintains concurrent with the plowing of nearby streets.
 - 5.5.2 Best Practices: Madison, WI

Discussion

Bicycles are more susceptible to damage than motor vehicles. To provide a safe bicycle network, bicycle facilities must be maintained to the highest level possible.

Bicycle tires are easily damaged by glass or other debris, while sticks, wet leaves, other debris and damaged pavement can pose a crash hazard to bicyclists. Frequent street sweeping and prompt attention to road damage are both necessary to provide a safe bicycle network (5.1 – 5.2).

Bicycle lane lines provide important separation between bicycles and motor vehicles on the road and it is critical that these lines are highly visible. Bicycle lane lines should be repainted annually or as needed (5.3). It is preferable to repaint bike lane lines as soon as snow clears in the spring, so they are fresh for the most heavily used time of year.

It is important to maintain off-street bicycle paths to the same level as on-street facilities (5.4). Because off-street paths and trails do not have vehicles traveling on them, they often need more frequent sweeping than streets to help clear leaves and other debris. Additionally, snow must be cleared from paths immediately after snowfall for the paths to serve as legitimate year-round bicycle transportation facilities (5.5).



Bike lane stripes need to be regularly repainted before they fade

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The Off-Street Bicycle Network

Goal

Provide a comprehensive network of off-street trails and paths that connect key destinations and provide recreational opportunities for those who prefer to ride away from motor vehicle traffic.

Off-Street Trails and Connections

This plan recommends continued implementation of the off-street trails recommended in the *Off-Street Bikeway Study*. In particular, the city should prioritize construction of the South Side Powerline Trail where it runs through the city or along its borders, and should work with adjoining municipalities to ensure the trail is completed through the entire corridor. The North Milwaukee Line should also be prioritized as it provides off-street access to an area of the city with no other off-street facilities. These two trails were not the top priorities described in the *Off-Street Bikeway Study*; however, these projects should now be prioritized due to progress on the South Side Powerline Trail by adjoining municipalities and much needed connections in the area of the North Milwaukee Line. Additionally, some projects prioritized in the *Off-Street Bikeway Study* have had obstacles arise that will keep them from moving forward for the foreseeable future. Additional trails are recommended along the Kinnickinnic River and Wilson Creek on the south side of the city.



The Oak Leaf Trail provides access to scenic park areas in the middle of Milwaukee

Off-street facilities are very popular, but can be difficult to access particularly if they are not at street level. The city should formalize all existing “desire paths” to trails as called for in the *Off-Street Bikeway Study*. Additionally, the city should construct more connections to existing off-street trails that are grade-separated from the street network, such as the Eastside Trail. This plan calls for adding at least four access ramps to existing grade-separated trails within the city to improve access to the trails.

Table 3: Proposed and Existing City Owned Off-Street Bikeways

Bikeway	Status	Approximate Length (miles)
Riverwest Linear Park	Existing	0.7
KK River Bike Trail	Existing	2.4
South Side Powerline Trail	Proposed	4.2 (9.1 total length)
Beer Line Extension	Proposed	0.7
North Milwaukee Line	Proposed	3.4
KK River Trail Extension	Proposed	3.1
Wilson Creek North	Proposed	0.7
Wilson Creek Central	Proposed	0.8
Wilson Creek South	Proposed	1.4



The Oak Leaf Trail also links many parks and recreation areas outside the City of Milwaukee

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Objective 1: Increase Off-Street Bicycle Facilities and Connections Throughout the City

Supporting Policies

- 1.1 Establish a City Trails program as part of the Milwaukee Bicycle Program.
 - 1.1.1 Performance Measures: Produce a report on the feasibility of a City Trails program including departmental oversight and responsibility by the end of 2011.
 - 1.1.2 Best Practices: Madison, WI; Boulder, CO
- 1.2 Implement the recommendations made in the 2006 City of Milwaukee Off-Street Bikeway Study.
 - 1.2.1 Performance Measures: Implement the Southside Powerline Trail and North Milwaukee line by the end of 2013. Continue implementing trails and recommendations made in the plan.
 - 1.2.2 Best Practices: Boulder, CO
- 1.3 Improve connections to existing trails.
 - 1.3.1 Performance Measures: Formalize existing desire lines to grade-separated trails; add at least four access ramps to grade-separated trails.
 - 1.3.2 Best Practices: Madison, WI
 - 1.3.3 Responsible Department: DPW, Milwaukee County Parks, Wisconsin DNR, National Park Service
- 1.4 Increase the number of off-street facilities throughout the city.
 - 1.4.1 Performance Measures: In cooperation with the County and DNR, add at least five miles of off-street facilities each year for the next five years.
 - 1.4.2 Best Practices: Boulder, CO; Minneapolis, MN
 - 1.4.3 Responsible Department: DPW, Milwaukee County Parks, Wisconsin DNR

Discussion

Bicycle trails are extremely popular in Milwaukee. Bicycle counts on portions of the Oak Leaf Trail indicate that hundreds of thousands of cyclists make use of the trail every year. At every meeting regarding the development of this plan there was nearly unanimous agreement that the City should expand the existing trail network.

However, nearly all off-street trails and paths in the city are owned and maintained by Milwaukee County or the Wisconsin Department of Natural Resources. The city should study establishing its own trail program to implement and maintain off-street trails that are not a part of the County or State system (1.1).

The 2006 *City of Milwaukee Off-Street Bikeway Study* proposed off-street connections and trails that can provide bicycle access around or across major barriers in the city. Implementing the recommendations in the plan will greatly expand bicycle access throughout the city while also creating off-street facilities that are comfortable for bicyclists of all ages and skill levels to use (1.2 – 1.3).

In addition to studying implementing its own trail system, the city should actively work with the County and DNR to expand the off-street network throughout the city (1.4). This effort should focus on crossing major barriers as well as providing continuous corridors that run north-south and east-west through the city.



An informal "desire path" linking to an off-street trail

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Objective 2: Create Officially Designated Places for Mountain Biking and BMX Riding

Supporting Policies

- 2.1 Work with local volunteers to design, build and maintain mountain bike trails in the city of Milwaukee.
 - 2.1.1 Performance Measures: Designate at least five miles of official mountain bike trails by 2011. Continue to expand network at a similar rate in future years.
 - 2.1.2 Best Practices: Milwaukee County Parks Department.
- 2.2 Work with local volunteers to design, build and maintain a dirt BMX track.
 - 2.2.1 Performance Measures: Build one American Bicycle Association sanctioned BMX track in the city by 2012.
 - 2.2.2 Best Practices: Boulder, CO
- 2.3 Work with local volunteers to design, build and maintain pump tracks (short dirt tracks with berms and rollers that allow riders to practice technical skills) in neighborhoods in the city of Milwaukee.
 - 2.3.1 Performance Measures: Build one pump track in the city by 2011.
 - 2.3.2 Best Practices: Seattle, WA
- 2.4 Support trail development in the Milwaukee River Corridor.
 - 2.4.1 Performance Measures: Grant permission for trails that are part of the Milwaukee River Greenway Master Plan where they run on city right of way.



The Milwaukee River Greenway Master Plan proposes extensive trails and paths along the Milwaukee River.

Discussion

Mountain biking and BMX biking are very popular recreational activities and sports. Yet because there are no legally designated trails or tracks for mountain bikers and BMX riders to use, they build their own illegal trails and tracks where they find open land.

There are now more than 50 miles of illegal single track trails along the Milwaukee and Menomonee Rivers, railroad tracks and through the Milwaukee lakefront parks. Many of these trails have been used by cyclists and hikers for 50 years or more. Most of them have now been mapped using GIS technology. Because these trails and tracks are built by users, there are often conflicts as some of the trails are on private property.

To address the need for such trails, the local communities of mountain bike and BMX riders have organized and worked with the County Parks Department, private land owners and other surrounding communities to designate official trails. These riders have been trained in the design, construction and maintenance of such trails so they are built in a sustainable way.

This plan recommends the city of Milwaukee work with interested volunteers to facilitate the designation, construction and regular maintenance of mountain bike trails, a BMX track and several small pump tracks in the city (2.1 – 2.3).

The Milwaukee River Corridor provides an excellent opportunity for additional shared use trails (with mountain biking allowed) to be developed within city limits. While much of the corridor and existing social trails lie on county land, the city should support the development of the trail where it is on city right of way. Community groups and the Milwaukee River Greenway Coalition envision raising private funds and tapping volunteer support for these improvements. The city should work together with the The Milwaukee River Greenway Coalition to develop the corridor with the following actions:

- Assist with the routing of any needed on-street bicycle connections
- Grant permission for trail connection improvements where city street right-of-ways can provide needed formal connections to the corridor
- Consider the Greenway as a trip generator and destination in future bicycle planning
- Adopt the Milwaukee River Greenway Master Plan
- Support grant applications
- Work cooperatively with the Milwaukee River Greenway Coalition

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Support Infrastructure

Goal

Provide the support infrastructure necessary to encourage and support bicycling throughout the city of Milwaukee.

A Robust Support System

For cycling to be a viable form of transportation, a system of support facilities must be in place in addition to such bicycle infrastructure as bike lanes and shared-use paths. Providing informational signage, including directions and distances to popular destinations, clearly marked bike routes and maps of the bicycle network can help cyclists easily get to their destination. Once at their destination, cyclists must be certain that there will be secure places to lock their bikes. Providing this support infrastructure ensures that bicycles can serve as a viable form of recreation and transportation in Milwaukee.



Beans & Barley Deli and Market on North Avenue offers convenient bicycle parking for patrons.

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Objective 1: Ensure That the Bicycle Network is Clearly Identified and Easy to Use

Supporting Policies

- 1.1 Provide ample bike lane and route signage.
 - 1.1.1 Performance Measures: Sign all bicycle lanes and routes to MUTCD and WisDOT standards by the end of 2011.
 - 1.1.2 Best Practices: Chicago, IL
- 1.2 Provide ample directional and location signage throughout the bicycle network.
 - 1.2.1 Performance Measures: Provide network signage at 20 key points around the city by the end of 2011. Provide directional signage on all major bicycle lanes and routes by the end of 2011.
 - 1.2.2 Best Practices: Berkeley, CA; Chicago, IL
- 1.3 Provide a simple, easy to use on-line mapping tool for bicycle facilities.
 - 1.3.1 Performance Measures: Provide an online bicycle map and routing system by the end of 2011.
 - 1.3.2 Best Practices: Broward County, FL (<http://maps.fiu.edu/mpobike/index.html>)
- 1.4 Ensure that free city bicycle maps are available for distribution throughout the city.
 - 1.4.1 Performance Measures: Print enough maps annually to meet demand and distribute to local bike shops and other areas for distribution.
 - 1.4.2 Best Practices: Madison, WI
- 1.5 Begin tracking the presence and status of bicycle facilities in the DIME and WISLR roadway data databases.
 - 1.5.1 Performance Measures: Add bikeway categories and coding to the DIME system in 2010 and begin tracking status immediately. Request that WisDOT add bikeway categories to WISLR in 2010.
 - 1.5.2 Responsible Department: DPW, WisDOT

Discussion

Signage for bicycle lanes, routes and boulevards indicate to both bicyclists and motorists that bicycles belong on the street (1.1). Additionally, signage should allow bicyclists to quickly and clearly identify where they are within the bicycle network, the direction to popular destinations, and the distance to and how long it will take them to get there (1.2). Directional signage is particularly important for new bicyclists and visitors to Milwaukee who may not be familiar with the bicycle network.

Signage should clearly indicate trail heads, trail connections, trail routes and destinations. It may be valuable to work with the County to name specific sections of the Oak Leaf Trail to ease identification. Signage should follow the requirements described in the MUTCD and the WisDOT FDM.

Residents have become accustomed to easily accessing maps and directions online. The city should provide an interactive, easy to use online mapping system that builds on existing GIS data (1.3). Additionally, the city should make this data accessible via mobile phones, either through a mobile web page or applications dedicated to specific mobile platforms. The city should also ensure that print maps are widely available throughout the city (1.4)

Tracking the presence and status of bikeways in the DIME and WISLR roadway databases will allow the city and other agencies to better map, plan and maintain the network (1.5).



On- and off-street bicycle facilities and trail connections should be well signed

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Objective 2: Provide Ample Bicycle Parking Throughout the City

Supporting Policies

- 2.1 Implement the recommendations of the 2007 Milwaukee Bicycle Parking Project Report.
 - 2.1.1 Performance Measures: Install racks to achieve a rate of one rack for every 250 residents by the end of 2012.
 - 2.1.2 Best practices: Portland, OR
- 2.2 Produce a flier with acceptable rack guidelines for business owners and developers.
 - 2.2.1 Performance Measures: Produce an information flier with bicycle parking and rack guidelines and require its inclusion with all relevant building permits.
 - 2.2.2 Best Practices: Cambridge, MA
- 2.3 Fund a program to continue providing bicycle racks to businesses that request them.
 - 2.3.1 Performance Measures: Ensure that 100% of requests can be met every year.
 - 2.3.2 Best Practices: Cambridge, MA
- 2.4 Provide bicycle parking at all City workplaces.
 - 2.4.1 Performance Measures: Provide a minimum of one bicycle rack for every ten employees at all city employment centers by the end of 2010. Provide bicycle lockers or secure indoor bike parking at the city's three largest employment centers by the end of 2011.
 - 2.4.2 Best Practices: Portland, OR
- 2.5 Fund a program to maintain or replace existing racks that are damaged or rusting.
 - 2.5.1 Performance Measures: Establish a program to regularly inspect all racks in the public right of way and repair or replace damaged ones.
- 2.6 Require attended bicycle parking at large events and sporting events.
 - 2.6.1 Performance Measures: Require events requesting a street closure with expected attendance of over 2,000 people to offer attended bicycle parking for participating patrons.
 - 2.6.2 Best Practices: San Francisco, CA

Discussion

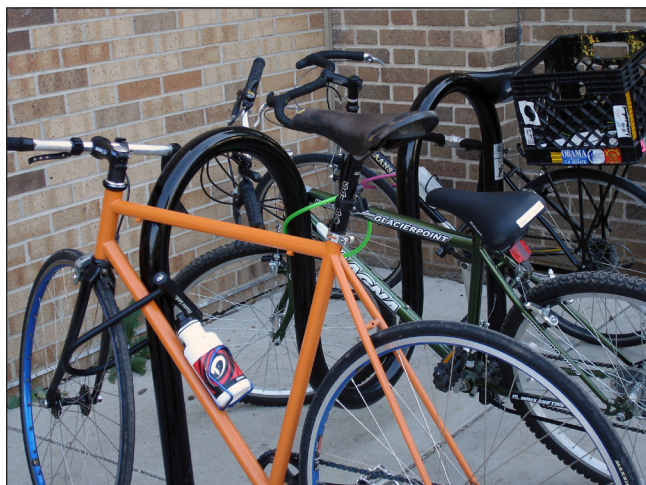
For bicycling to be a viable transportation option, there must be plentiful secure bicycle parking throughout the city. The 2007 *Milwaukee Bicycle Parking Project Report* found that Milwaukee provides approximately one bicycle rack for every 298 residents, a rate that compares poorly with peer cities. The city should continue to implement the recommendations of the 2007 report (2.1)

The Association of Pedestrian and Bicycle Professionals publishes model Bicycle Parking Guidelines that address acceptable size, type, material, placement and maintenance of bike racks and can be tailored to Milwaukee. The city should produce a brief flier summarizing acceptable rack types and placement that should be included with all permits for construction of new commercial, industrial, office and multi-family housing (2.2).

The city can increase bicycle parking by continuing its program of furnishing bicycle racks to all businesses requesting them for installation in the public right of way (2.3). The city should also lead by example by providing bicycle lockers or indoor bicycle rooms at all municipal employment locations with over ten employees (2.4).

Many existing racks in the city are damaged or rusting, but there is no regular maintenance program to repair or replace them. As part of the Bicycle Program, the city should regularly assess the condition of all racks in the public right of way and repair or replace those that are damaged or rusting (2.5).

The city should require attended bicycle parking (valet parking) at large public events both to promote cycling and to reduce motor vehicle congestion at such events (2.6). The city of San Francisco has had success with their mandatory bike valet parking ordinance.



Bicycle parking quickly fills up at popular destinations.